

REMARKS

The application has been amended and is believed to be in condition for allowance.

The specification page 8 amendment refers to the prior art. The specification page 47 amendment removes a spurious subscript. The specification page 56 amendment revises the word order to improve the grammar.

Support for the amendments to claim 28 can be found at page 38, lines 9-10 of the original specification.

Support for the amendments to claim 29 can be found at page 40, line 26 of the original specification.

Applicant acknowledges with appreciation that the claims, apart from formal matters, have been indicated to be directed to allowable subject matter.

If there are any formal matters that remain outstanding, it is requested by the undersigned attorney be contacted by telephone in order to reach agreement in resolving the remaining outstanding formal matters.

The Official Action objected to the specification for not including a compact disc for the submitted computer program listings.

The required compact disc (and copy) is attached.

The specification has been amended.

Claims 1-52 were rejected under section 101 as being directed to non-statutory subject matter.

The Official Action states that a statutory computer process is not determined by how the computer performs a process, but by what the computer does to achieve a practical application with a useful, concrete and tangible result.

The claims have been amended to remedy the stated basis of rejection.

Claim 1 has been amended to clarify the inventive method has the useful, concrete and tangible result of predicting a flow by simulating behavior of a flow interacting with an object.

As recited, the inventive method includes  
first, developing a simulated numerical representation for a behavior of a flow interacting with an object,

second, outputting the simulated numerical representation that simulates the behavior of the flow interacting with the object, and

third, determining the behavior of the flow interacting with the object by using the output simulated numerical representation.

Even if the first developing part, standing alone, is not considered useful, concrete and tangible result, it is submitted that each of the second outputting and third

determining of the behavior of the flow parts are useful, concrete and tangible result within the meaning of the statute (section 101).

See published application paragraphs [0019-0020] disclosing that output may be written as a file, e.g., comprising of the value of physical variables in each of the grid points, where the number of physical variables corresponds to the problem or the grid.

See in paragraph [0020] that a post-processing program is used to read the grid file and the output file to extract any desired physical parameter which can be computed from the solution. If the solution is written in the form of conservative variables, this program can compute the pressure, which is needed for the lift and drag. It can also compute variables like the Mach number, the temperature and so on.

[0026] The practical use of numerical simulations is illustrated in step 5, where the output of the program is transformed into a useful result. The output of the numerical simulation can serve many purposes, depending on the application. Quite often, this involves the pressure, since this relates to forces on the object under design. For a wing, this can be the Mach number for restricting the shock strength. For turbo machines, this can be the pressure on the blades, or the thermal load. For a heart valve, this can be the velocity field which needs to be smooth to avoid

cluttering. For a forest fire simulation, this is again the velocity field to predict the likely progress of the fire.

See paragraph [0027] disclosing that the person who runs the program makes use of the output or the output can also be fed back without human interference into the program, e.g., where the desired pressure distribution is prescribed in the form of a goal. The geometry of the object and the related grid possess degrees of freedom which allow optimization to reach the goal. Remark that the purpose in the example above is the optimal geometry of the wing. The numerical solution is a convenient tool to achieve this goal.

In that claim 1 recites useful, concrete and tangible results, the claim set is believed to meet the section 101 requirement.

Withdrawal of the rejection and allowance of all the claims are therefore solicited.

Applicant believes that the present application is in condition for allowance and an early indication of the same is respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional  
fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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